M32182T2-PTC

Converter for In-circuit Connection (for M32182F3xFP)

Instruction Manual

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Safety Symbol and Meaning

⚠ CAUTION If the requirements shown in the "CAUTION" sentences are ignored, the equipment may cause personal injury or damage to the products.

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1. Outline

The M32182T2-PTC is a converter for featuring the debugging function such as real-time tracing when using emulators M32170T-SDI, M32100T-SDI-E or M32100T2-SDI-E with the M32182F3xFP.

2. Package Components

(1) M32182T2-PTC converter
(2) YQPACK144SD (made by Tokyo Eletech Corporation)
(3) NQPACK144SD (made by Tokyo Eletech Corporation)
(4) YQ-GUIDE x4 (made by Tokyo Eletech Corporation)
(5) Screwdriver (made by Tokyo Eletech Corporation)
(6) M32182T2-PTC Instruction Manual (This manual)

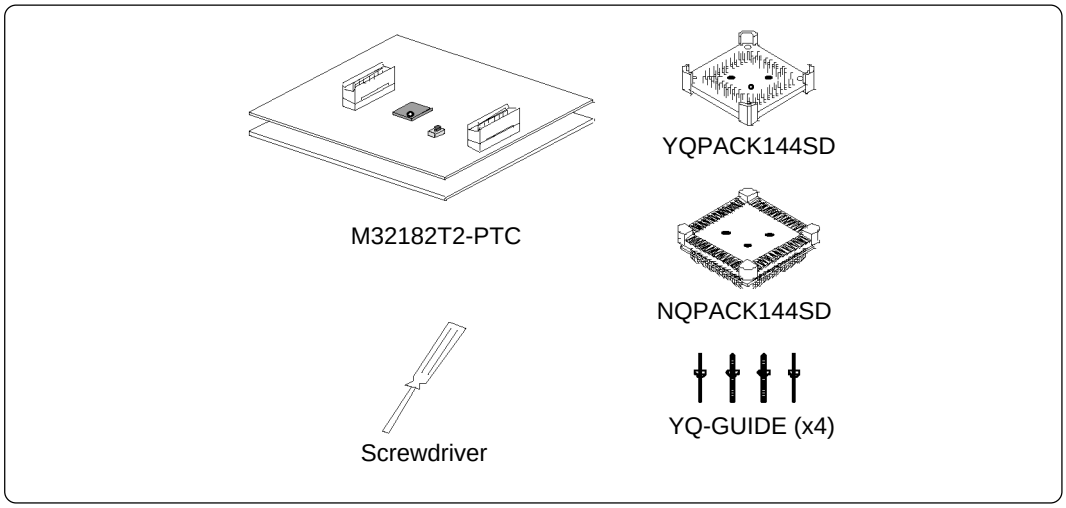


Figure 1 Package components of the M32182T2-PTC

3. Specifications

Table 1 Specifications

Applicable package	144P6Q-A (144-pin 0.5-mm-pitch QFP)
Supported MCU	M32182F3xFP
Supported emulator	M32170T-SDI, M32100T-SDI-E or M32100T2-SDI-E With the M32170T-SDI or M32100T-SDI-E, separately available M3T-PTC-CNV is required.
Mounted MCU	M32180F8VWG
Clock	10 MHz
Power supply	Supplied from the target board

4. Usage

The M32182T2-PTC can be used for debugging and board mounted evaluation in common by mounting the NQPACK144SD on the target board.

(1) For debugging
Mount the NQPACK144SD (included with the M32182T2-PTC) on the 144QFP foot pattern of the target board. Then connect the M32182T2-PTC via the YQPACK144SD. As the M32180F8VWG is mounted on the M32182T2-PTC, all functions of the emulator such as real-time tracing can be used.
Before using the M32182T2-PTC, be sure to read "8. Precautions" on page 7.

(2) For board-mounted evaluation
Mount the M32182F3xFP and the HQPACK144SD (separately available) in that order on the NQPACK144SD on the target system.

5. Connection Procedure

The procedure for connecting the M32182T2-PTC is shown according to applications. See Figures 2 to 4.

5.1 For the M32100T2-SDI-E

(1) Mount the NQPACK144SD.

(2) Mount the YQPACK144SD on the NQPACK144SD.

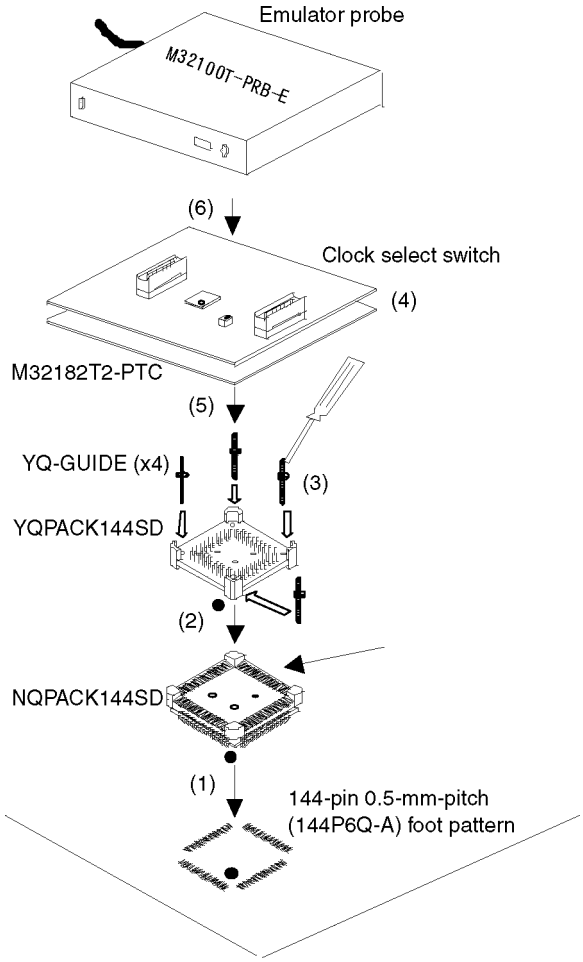
(3) Secure the four corners of the YQPACK144SD with the YQ-GUIDE's.

(4) Set the clock select switch.

(5) Mount the M32182T2-PTC on the YQPACK144SD.

(6) Connect the emulator probe to the M32182T2-PTC.

Connection to the M32100T2-SDI-E



●: Position of No. 1 pin
Be sure to match the position of No. 1 pin of the foot pattern and each part.

Figure 2 Connection to the M32100T2-SDI-E

5.2 For the M32100T-SDI-E and M32170T-SDI

(1) Mount the NQPACK144SD.

(2) Mount the YQPACK144SD on the NQPACK144SD.

(3) Secure the four corners of the YQPACK144SD with the YQ-GUIDE's.

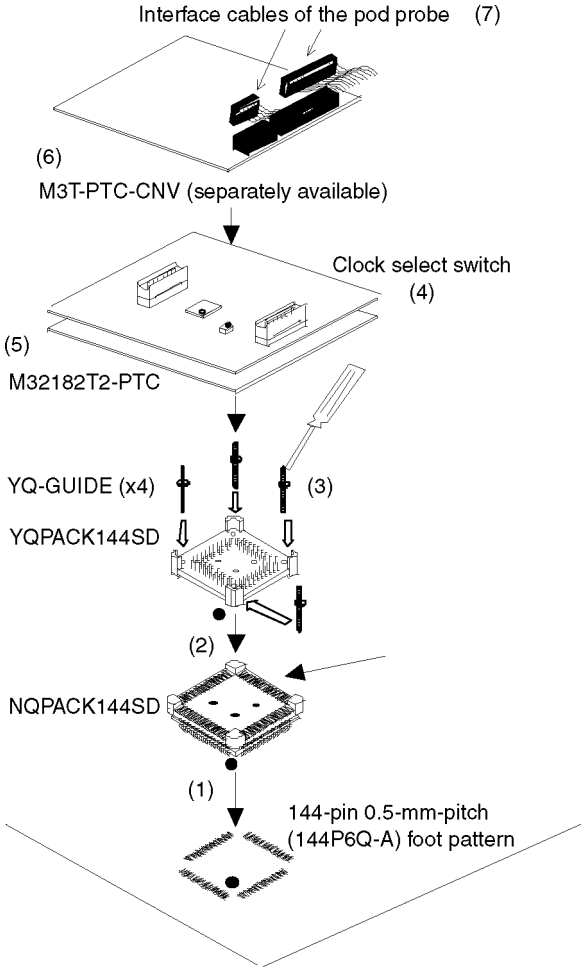
(4) Set the clock select switch.

(5) Mount the M32182T2-PTC on the YQPACK144SD.

(6) Mount the M3T-PTC-CNV on the M32182T2-PTC.

(7) Connect the probe of the emulation pod and the M32182T2-PTC via the SDI MCU control interface cable and the SDI trace interface cable.

Connection to the M32100T-SDI-E or M32170T-SDI



●: Position of No. 1 pin
Be sure to match the position of No. 1 pin of the foot pattern and each part.

Figure 3 Connection to the M32100T-SDI-E or M32170T-SDI

5.3 For Board-mounted Evaluation

(1) Mount the NQPACK144SD.

(2) Mount the M32182F3xFP on the NQPACK144SD.

(3) Mount the HQPACK144SD on the NQPACK144SD.

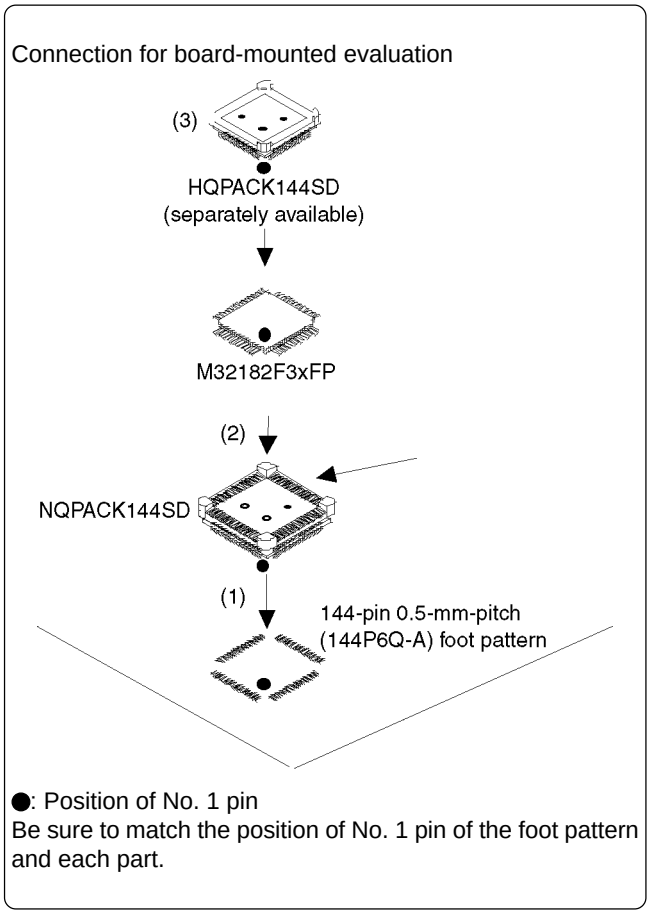


Figure 4 Connection for board-mounted evaluation

6. Selecting a Clock

With the M32182T2-PTC, it is possible to select a clock supply to the MCU by the clock select switch (SW1). Select a clock supply as shown below.

However, when used with the M32182T2-PTC, the clock cannot be supplied from the target system.

10 MHz: Supplies the clock (X1: 10 MHz) on the M32182T2-PTC board to the MCU.

SOCKET: Supplies the clock to the MCU from the socket (X2) for mounting the oscillator on the M32182T2-PTC board. By mounting the oscillator to the X2 socket of the MCU, it is possible to change the operating frequency.

For more details on the connecting the X2 socket and the MCU, see Figure 5 (right).

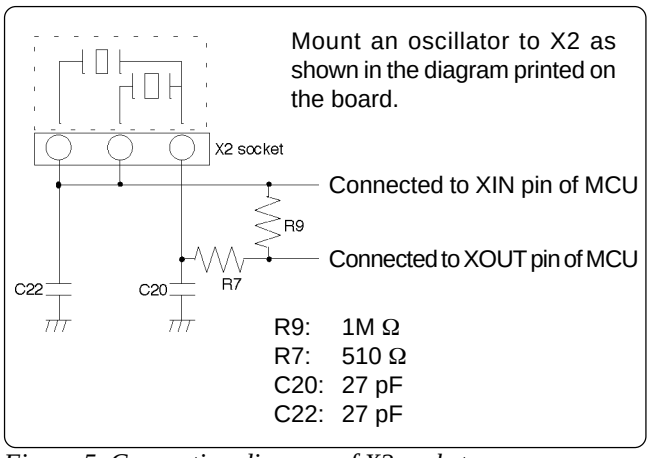


Figure 5 Connection diagram of X2 socket

7. External Dimensions and a Sample Foot Pattern of the M32182T2-PTC

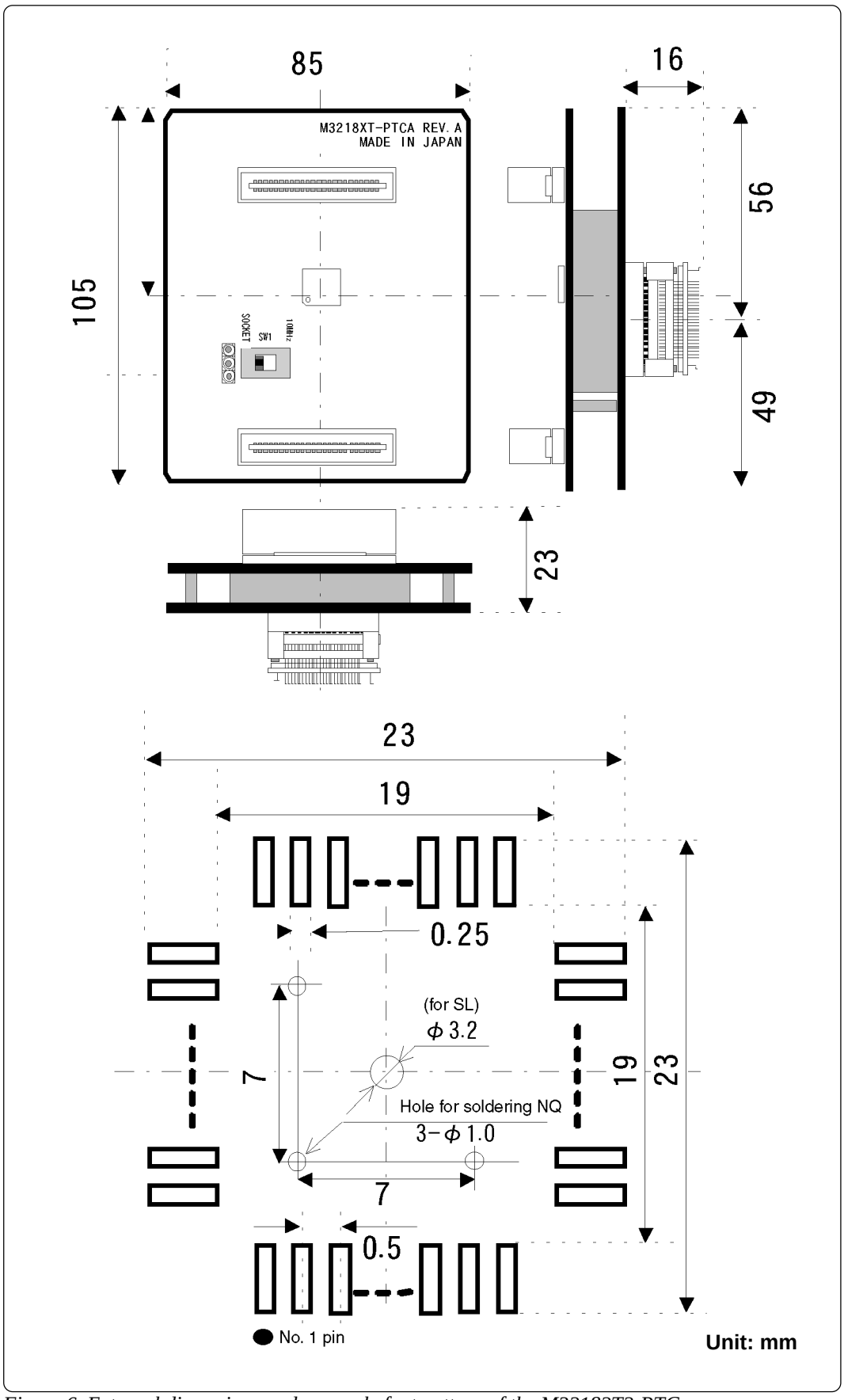


Figure 6 External dimensions and a sample foot pattern of the M32182T2-PTC

8. Precautions

⚠CAUTION

Cautions to Be Taken for Emulator:

- For debugging, use this product in the combination with the M32170T-SDI, M32100T-SDI-E or M32100T2-SDI-E emulator.
- When using with the M32170T-SDI or M32100T-SDI-E, the following restriction is applied according to the MCU operating frequency.
  - More than 66 MHz:
    Compared with the M32100T2-SDI-E, more loss of trace information occurs.
  - 66 MHz or less:
    Same as the M32100T2-SDI-E.
- When using with the M32170T-SDI or M32100T-SDI-E, connect the both cables for connecting the emulator, the SDI MCU control interface cable (10-pin) and the SDI trace interface cable (20-pin).
- For the precautions for the combination of the emulator, refer to the user's manual of each emulator.

Cautions for Differences between MCUs and This Product:

- For debugging, as the M32180F8VWG (1MB internal Flash ROM) on the M32182T2-PTC is used, be careful about the difference of the internal Flash ROM size when using the M32182F3xFP.
- When the clock select switch is set to the "SOCKET" side, the oscillation occurs by itself, be careful about the difference of the resistance and the capacitor.
- The capacitive load of the all lines of the MCU will increase depending on wirings and connectors. Use the part whose timing is critical after checking it works properly.

Cautions to Be Taken for This Product:

- When connecting the YQPACK144SD, be sure to use the included YQ-GUIDE's.
- We cannot accept any request for repair.
- For purchasing the NQPACK144SD, YQPACK144SD and HQPACK144SD, contact the following:

  Daimaru Kogyo Ltd.
  http://www.daimarukogyo.co.jp/index_e.htm

  Tokyo Eletech Corporation
  http://www.tetc.co.jp/e_tet.htm
- For inquiries about the product or the contents of this manual, contact your local distributor.

  Renesas Tool Homepage http://www.renesas.com/en/tools